

**Maryland Department of Natural Resources - Fisheries Service**  
**Striped Bass (*Morone saxatilis*) Commercial Harvest Monitoring Cost Estimate Report**

**Harry T. Hornick and Carrie Kennedy**  
**Fisheries Service**  
**Maryland Department of Natural Resources**

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## **Introduction**

The purpose of this report is to provide an estimate of costs to the Department of Natural Resources (MD DNR) – Fisheries Service for the monitoring and administration of Maryland's commercial striped bass fishery. This report will not provide, at this time, Departmental cost estimates for MD DNR Natural Resources Police enforcement activities. Cost estimates for Natural Resources Police (NRP) striped bass enforcement activities are currently being prepared and will be provided at a later date. Costs relating to striped bass population monitoring and biological characterization and interstate management would not change with a different commercial management system. Therefore, cost estimates for research activities are not included in this report.

Maryland completed its eighteenth commercial fishing year utilizing a quota system and limited entry of fishermen in 2007. Commercial seasons were open for 24 weeks in Chesapeake Bay (January-February, June-December), and 24 weeks in the Atlantic Ocean (January-April, Nov-Dec). The 2007 Chesapeake Bay commercial quota was 2,134,116 lbs. The Bay quota was further divided among gear types as follows: drift gill net, 960,352 lbs; hook and line, 640,236 lbs; pound net/haul seine, 533,529 lbs. Gear-specific quotas were adjusted throughout the year as progress toward the Bay quota was monitored. State jurisdictional waters on the Atlantic coast were allotted a quota of 126,396 lbs (Durell and Warner 2008).

The Chesapeake Bay had three distinct commercial seasons in 2007. The pound net/haul seine fishery was open from June 1 through November 30, 2007. The hook and line fishery operated from June 14 through November 30, 2007 on selected days of the week. The drift gill net fishery was open between the periods of January 2 through February 28 and December 3 through 31, 2007. The Atlantic Coast drift gill net/otter trawl fishery was open during the periods January 1 through April 30 and November 1 through December 31, 2007. The commercial striped bass fishery in Chesapeake Bay operated under an 18-36 inch (TL) slot limit. The commercial fishery on the Atlantic coast operated under a 24 inch (TL) minimum size limit. Table 1 briefly summarizes Maryland 2007 striped bass commercial regulations.

## **Commercial Harvest Monitoring**

The Maryland Department of Natural Resources (MD DNR), Fisheries Service, solicited cooperation from licensed seafood dealers throughout the state to act as Striped Bass Commercial Check Stations. Check stations were responsible for counting and weighing each fisherman's catch and certifying the daily harvest data on the individual fisherman's harvest permit during each season. All commercially harvested striped bass were required to pass through a check station prior to sale. Check stations provided a weekly report to the Department detailing daily fishing activities of each checked permittee. Reported landings (pounds) were estimated from these weekly reports by Fisheries Service staff. In 2007, there were 29 check stations; 11 on the western shore of the Chesapeake Bay and 18 check stations on Maryland's eastern shore area.

Three full-time and four part-time Fisheries Service staff were directly involved in the monitoring and administration of the entire striped bass commercial fishery. Employees assisting part-time were interviewed in order to accurately estimate the amount of their time dedicated to

striped bass commercial fishery monitoring activities. Full-time employees were involved in such duties as administration of the declaration of intent process, striped bass permit distribution, pound net verification, haul seine certification, tag distribution, commercial check station designation and management and overall record keeping for 1231 eligible licencees and 29 check stations participating in the fishery. Part-time Fisheries Service staff were involved with check station data collection, editing and entry, and monthly fishing report (MFR) data entry and editing. Total salaries for Fisheries Service staff involved in the administration of the commercial striped bass fishery in 2007 amounted to \$206,883 (Table 2). Monitoring program expenses for items such as commercial tags, forms, record books, postage and supplies totaled \$68,845 (Table 3). Total expenses for Fisheries Service for administration and monitoring of Maryland's striped bass commercial fishery for 2007 were estimated to be at \$275,728 (Table 4). The total amount received by the Department from striped bass surcharge and permit fees in 2007 was \$139,000 (Table 5). The total costs for fishermen participating in the striped bass commercial fishery for license fees to MD DNR was \$328,125 (Table 6).

### **Reported Commercial Harvest**

Commercial landings by gear are presented in Table 7. In Chesapeake Bay, 586,934 striped bass weighing 2,240,585 pounds were harvested in 2007 (Gillnet: 202,616 fish, 1,068,304 lbs.; Pound Net/Haul Seine: 146,518 fish, 528,683 lbs; Hook and Line: 237,800 fish, 643,598 lbs). In Atlantic Ocean waters, 11,561 striped bass weighing 96,301 pounds were harvested. The time series of Maryland Chesapeake Bay commercial landings in numbers and pounds is presented in Table 8.

Total commercial effort in 2007 was determined from monthly fishing activity reports submitted to the Department by licensed fishermen. Total commercial effort by striped bass permit holders was estimated at 7,995 days. In Chesapeake Bay, pound net effort was 1,643 days, hook and line effort was 3,200 days, and drift gill net effort was 2,978 days. In the Atlantic Ocean, gill net effort was 118 days and trawl effort was 56 days. Days were defined as days when striped bass landings were reported. Commercial Catch per unit of effort (CPUE) as fish per day was 74.9 in 2007, compared to 95.8 in 2006. CPUE as pounds per day was 292.3 in 2007, compared to 322.4 in 2006.

## MD DNR - Natural Resources Police Monitoring

The numbers below reflect the hours spent by field officers on inspection of commercial seafood establishments and enforcement of tidal fishing laws and regulations. The current documentation process follows the fiscal year, not the calendar year, so the numbers have been included for both FY07 and FY08. These totals are from field officers in Areas 1-6, which includes all portions of Maryland lying East of Frederick County.

### FY07 HOURS SPENT: (Areas 1-6)

Seafood - Commercial Establishments Checked.	1,977.8 hrs
Tidal Fishermen Checked	28,829.3 hrs

### FY08 HOURS SPENT: (Areas 1-6)

Seafood - Commercial Establishments Checked.	1,732.8 hrs
Tidal Fishermen Checked	36,083.2 hrs

The Employee Work Report (NRP form 206) is submitted bi-weekly by field officers and creates the database for these statistics. This form does not categorize which fish species is being enforced, only the number of hours spent on tidal or non-tidal fishing activity.

During the same time periods in Areas 1-6, the following number of commercial fishermen and seafood and commercial establishments were checked:

### FY07

Commercial Fishermen Checked:	12,754
Seafood -Commercial Establishments Checked:	2,919

### FY08

Commercial Fishermen Checked	12,874
Seafood - Commercial Establishments Checked	2,930

During the same time periods in Areas 1-6, the following hours were spent patrolling by boat and by vehicle:

### FY07 METHODS OF PATROL

Boat	38,743.4 hrs
Vehicle	80,169.2 hrs

### FY08 METHODS OF PATROL

Boat	39,972.8 hrs
Vehicle	84,363.9 hrs

## Summary

Maryland striped bass commercial fishermen reported harvesting 2,336,886 pounds of striped bass from the Chesapeake Bay and Atlantic Ocean in 2007. Total estimated cost of administration of this fishery by the MD DNR – Fisheries Service, was \$275,728. MD DNR - Fisheries Service collected \$139,000 from striped bass permit fees in 2007. The Department collected \$328,125 in license fees from fishermen participating in the striped bass commercial fishery.

The ex-vessel price (price received by fishermen at the first point of sale) of striped bass harvested through the 2007 season ranged from \$1.50 to \$3.50 per pound depending on fish size, time of season, supply and consumer demand. An average, ex-vessel value of \$2.18 per pound was estimated by the National Marine Fisheries Service (NMFS) (2008). The total estimated ex-vessel value of the 2007 harvest using an average of \$2.18 per pound was \$5,094,411. However, this is not an estimate of the total value of the commercial striped bass fishery, or an indication of this fisheries significant economic impact on local economies.

The ex-vessel value of the commercial fishery estimates the immediate value of the commercial harvest but does not reflect the multiplier effects of following revenues generated by seafood processors, distributors and retailers (NMFS 1999). Further expansion of harvest estimates to get a more accurate value of Maryland's striped bass commercial fishery will require economic multipliers to be calculated in order to estimate the fiscal impact of all sectors of the commercial striped bass fishery.

### Citations

Durell, E., and L. Warner. 2008. Maryland Striped Bass (*Morone saxatilis*) Compliance Report To The Atlantic States Marine Fisheries Commission – 2007. June 2008.

NMFS. 2008. Fisheries of the United States. Current Fishery Statistics No. 2007. US Dept of Commerce July, 2008

NMFS. 1999. Our Living Oceans. Report on the status of U.S. living marine resources, 1999. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-F/SPO-41.

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Table 1. Maryland 2007 striped bass commercial regulations.

Season	Bay: pound net/haul seine (June 1-Nov 30)
Annual quota (lbs)	533,529
Trip Limit	Pound net 200 lbs/license/day; haul seine 750 lbs/license/day
Minimum Size	18-36 inch TL slot
Reporting requirement	Daily check station reports and monthly harvest report
# of participants	pn: 140, hs: 5
Season	Bay: hook and line (June 14-Nov 30)
Annual quota (lbs)	640,236
Trip Limit	300 lbs/day; 800 lbs/license/week
Minimum Size	18-36 inch TL slot
Reporting requirement	Daily check station reports and monthly harvest report
# of participants	149
Season	Bay: drift gill net (Jan 2-Feb 28, Dec 3-31)
Annual quota (lbs)	960,352
Trip Limit	500 lbs/license/day
Minimum Size	18-36 inch TL slot
Reporting requirement	Daily check station reports and monthly harvest report
# of participants	832
Season	Atlantic: drift gill net/otter trawl (Jan 1-Apr 30, Nov 1-Dec 31)
Annual quota (lbs)	126,396
Trip Limit	None; 1,950 pounds/license/season
Minimum Size	24 inch TL min
Reporting requirement	Daily check station reports and monthly harvest report
# of participants	68

Table 2. Maryland Department of Natural Resources – Fisheries Service staff salaries for commercial striped bass harvest monitoring in 2007. (Source: Human Resources Service., MD DNR).

POSITIONS	SALARY	PERCENT OF TIME	TOTAL SALARY COST
<b>Permanent</b>			
Nat. Res Biol III	\$45,806	100%	\$45,806
OPS Data Proc Program	\$35,890	20%	\$7,178
OFC Services Clerk	\$32,226	50%	\$16,113
OFC Services Clerk	\$36,544	30%	\$10,963
OPS Data Proc Program Analyst	\$56,609	10%	\$5,660
<b>Sub Total</b>			<b>\$85,720</b>
<b>Fringe (30%)</b>			<b>\$25,716</b>
			<b>\$111,436</b>
<b>Indirect Costs (14.51%)</b>			<b>\$16,169</b>
<b>TOTAL SALARIES - Permanent</b>			<b>\$127,605</b>
<b>Contractual</b>			
Nat. Res Biol I	\$34,113	100%	\$34,113
Admin. Spec I -Seasonal	\$30,200	100%	\$30,200
<b>Sub Total</b>			<b>\$64,313</b>
<b>Social Security (7.65%)</b>			<b>\$4,920</b>
			<b>\$69,233</b>
<b>Indirect Costs (14.51%)</b>			<b>\$10,045</b>
<b>TOTAL SALARIES - Contractual</b>			<b>\$79,278</b>
<b>GRAND TOTAL - SALARIES</b>			<b>\$206,883</b>



Table 3. Maryland Department of Natural Resources - Fisheries Service Program Expenses for commercial striped bass harvest monitoring and administration in 2007.

<b>MONITOTING PROGRAM EXPENSES</b>	<b>COSTS</b>
Striped Bass tags (840 Boxes / \$63.00 box)	\$52,920
Postage	\$2,500
Declaration of Intent Forms	\$1,800
Permit Cards	\$1,500
Check Station Logs	\$2,400
Envelopes	\$525
Public Notices	\$5,000
Finfish Monthly Reports	\$2,200
<b>TOTAL</b>	<b>\$68,845</b>

Table 4. Maryland Department of Natural Resources-Fisheries Service Total Striped Bass Commercial Monitoring Program Expenses for commercial striped bass harvest monitoring and administration in 2007.

<b>MONITOTING PROGRAM TOTAL EXPENSES</b>	<b>COSTS</b>
Salaries – Permanent Staff	\$127,605
Salaries – Contractual Staff	\$ 79,278
Expenses/Supplies/Forms	\$68,845
<b>TOTAL</b>	<b>\$275,728</b>

Table 5. Maryland Striped Bass Permit Fees by commercial finfish license types for 2007.

<b>License Type</b>	<b>Number</b>	<b>Permit Fee</b>	<b>Total</b>
Unlimited Tidal Fish License (TFL)	1058	\$100.00	\$105,800
Finfish – Hook and Line (HLI)	94	\$200.00	\$18,800
Finfish Harvester (FIN)	72	\$200.00	\$14,400
		<b>TOTAL</b>	<b>\$139,000</b>

Table 6. Maryland commercial finfish licenses eligible to harvest striped bass in 2007.

<b>License Type</b>	<b>Number</b>	<b>License Cost</b>	<b>Total Cost</b>
Unlimited Tidal Fish License (TFL)	1058	\$300.00	\$317,400
Finfish – Hook and Line (HLI)	94	\$37.50	\$3,525
Finfish Harvester (FIN)	72	\$100.00	\$7,200
		<b>TOTAL</b>	<b>\$328,125</b>

Table 7. Maryland 2007 commercial striped bass harvest by gear type and area, based on MD DNR reported landings.

Area	Gear	Number of Fish	Total Pounds
Chesapeake Bay	Pound net/haul seine	146,518	528,683
	Hook and line	237,800	643,598
	Gill net	202,616	1,068,304
<b>Bay Total</b>		<b>586,934</b>	<b>2,240,585</b>
Atlantic Ocean	Trawl/gill net	11,561	96,301
<b>MD Total</b>		<b>598,495</b>	<b>2,336,886</b>

Table 8. Maryland Chesapeake Bay commercial striped bass landings in numbers and pounds, 1991-2007.

Year	Numbers	Pounds
1991	31,880	191,066
1992	119,286	552,451
1993	211,089	916,764
1994	208,914	884,970
1995	280,051	856,568
1996	415,272	1,523,293
1997	656,416	2,030,061
1998	780,893	2,368,393
1999	650,022	2,377,393
2000	627,777	2,411,554
2001	538,808	1,774,758
2002	296,635	1,852,634
2003	587,438	1,813,676
2004	461,064	1,899,539
2005	563,859	2,008,687
2006	645,078	2,116,257
2007	586,934	2,240,585